COIT13229 *Applied Distributed Systems*
Term 1 - 2017

Profile information current as at 14/12/2025 03:36 pm

General Information

Overview
This unit is designed to analyse and apply the knowledge common in the distributed systems domain. Technical issues such as communication, process management and control, naming issues in distributed systems, fault tolerance and security, synchronisation, consistency and replication, and distributed object and file systems are covered. Students will carry out processes that use these specialised skills in the application of these concepts to applied practical problems in the distributed systems problem domain.

Details
Career Level: *Undergraduate*
Unit Level: *Level 3*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
Pre-requisite: COIT11134
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 1 - 2017

- Brisbane
- Distance
- Melbourne
- Rockhampton
- Sydney

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Practical and Written Assessment**
Weighting: 20%
2. **Practical and Written Assessment**
Weighting: 20%
3. **Examination**
Weighting: 60%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Course evaluation

Feedback
Assessment (feedback)

Recommendation
Will request markers to provide more detailed feedback

Feedback from Course evaluation

Feedback
Course contents

Recommendation
Review the difficulty of the tutorial questions

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. understand the principles of distributed systems
2. gain an in depth appreciate for the issues and algorithms found in the distributed systems problem domain
3. demonstrate the ability to solve problems in the distributed systems domain by solving problems by applying the abstract concepts taught in the unit to real problems
4. critically evaluate the methodology taught in the unit

Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.
ACS members can use the tool MySFIA to build a skills profile at
https://www.acs.org.au/professionalrecognition/mysfia-b2c.html
This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Systems Design (DESN)
- Systems Integration (SINT)
- Program ming/Software Development (PROG),
- Database/Repository Design (DBDS)
- Testing (TEST)
- Network support (NTAS)
- Release and Deployment (RELM)
- Application Support (ASUP)

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level ∘ Introductory Level • Intermediate Level • Graduate Level ∘ Professional Level ∘ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Practical and Written Assessment - 20%	•	•	•	•
2 - Practical and Written Assessment - 20%	•	•	•	
3 - Examination - 60%	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•	•	•
2 - Problem Solving	•	•	•	•
3 - Critical Thinking	•	•	•	•
4 - Information Literacy	•	•	•	•
5 - Team Work				
6 - Information Technology Competence	•	•	•	•
7 - Cross Cultural Competence				
8 - Ethical practice				
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Practical and Written Assessment - 20%	•	•	•	•		•				
2 - Practical and Written Assessment - 20%	•	•	•	•		•				
3 - Examination - 60%		•	•			•				

Textbooks and Resources

Textbooks

COIT13229

Prescribed

Distributed Systems Concepts and Design
5th Edition (2012)
Authors: George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair
Addison-Wesley
Boston , USA
ISBN: 978-0-13-214301-1
Binding: Hardcover

View textbooks at the CQUniversity Bookshop

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Java Development Kit (JDK) 1.7 or higher or NetBeans IDE 8 or higher

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Wei Li Unit Coordinator
w.li@cqu.edu.au

Schedule

Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
An Introduction to Distributed Systems	Chapter 1 & Chapter 2	

Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Interprocess Communication	Chapter 4	

Week 3 - 20 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Distributed Objects and Remote Invocation	Chapter 5	

Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Process and Thread Management – Operating System Support	Chapter 7	

Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Replication and Fault Tolerance	Chapter 18	**Assignment-1** Due: Week 5 Friday (7 Apr 2017) 11:45 pm AEST

Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Vacation		

Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Distributed File Systems	Chapter 12	

Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Name Services	Chapter 13	

Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Coordination and Agreement	Chapter 15	

Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Transactions and Concurrent Control	Chapter 16	

Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Distributed Transactions	Chapter 17	**Assignment-2** Due: Week 10 Friday (19 May 2017) 11:45 pm AEST

Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Security in Distributed Systems	Chapter 11	

Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Web Services	Chapter 9	

Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

The unit coordinator of Term 1 2017
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Assessment Tasks

1 Assignment-1

Assessment Type
Practical and Written Assessment

Task Description
Your task for this assignment is to construct a number of Java classes to show your understanding and programming skills about Java Interface, Java Object Serialization, Java multi-threading model and client/server model. The purpose of this assignment is to assess your competency about the fundamental Java components of distributed applications.
The assignment specification and marking criteria can be found from the unit web site.

Assessment Due Date
Week 5 Friday (7 Apr 2017) 11:45 pm AEST

Assignment-1 Due

Return Date to Students
Week 6 Friday (21 Apr 2017)

Assignment-1 Results Release

Weighting
20%

Assessment Criteria
The assignment will be assessed by the software implementation and user instruction document. The detailed marking criteria can be found from the unit web site.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Submit from the unit Moodle site

Learning Outcomes Assessed

- understand the principles of distributed systems
- gain an in depth appreciate for the issues and algorithms found in the distributed systems problem domain
- demonstrate the ability to solve problems in the distributed systems domain by solving problems by applying the abstract concepts taught in the unit to real problems
- critically evaluate the methodology taught in the unit

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Assignment-2

Assessment Type
Practical and Written Assessment

Task Description
Your task for this assignment is to design, implement, test and document a remote invocation framework that is similar to Java RMI but lightweight. The purpose of this assignment is to assess your competency in constructing a distributed application by using Java TCP Networking, Multi-threading, Object Serialization and client/server model.
The assignment specification and marking criteria can be found from the unit web site.

Assessment Due Date
Week 10 Friday (19 May 2017) 11:45 pm AEST

Assignment-2 Due

Return Date to Students
Week 12 Friday (2 June 2017)

Assignment-2 Results Release

Weighting
20%

Assessment Criteria
The assignment will be assessed by the design and test document and software implementation. The detailed marking criteria can be found from the unit web site.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Submit from the unit Moodle site

Learning Outcomes Assessed

- understand the principles of distributed systems
- gain an in depth appreciate for the issues and algorithms found in the distributed systems problem domain
- demonstrate the ability to solve problems in the distributed systems domain by solving problems by applying the abstract concepts taught in the unit to real problems

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

Examination

Outline
Complete an invigilated examination.

Date
During the examination period at a CQUniversity examination centre.

Weighting
60%

Length
180 minutes

Exam Conditions
Open Book.

Materials
Calculator - non-programmable, no text retrieval, silent only
Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem